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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/512,359	02/24/2000	Hideaki Mitsutake	35.C14286	4688

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EXAMINER

ALAVI, ALI

ART UNIT PAPER NUMBER

2875

DATE MAILED: 12/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/512,359

Applicant(s)

MITSUTAKE ET AL.

Examiner

Ali Alavi

Art Unit

2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 12.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 6/19/02 has been entered.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

3. Claims 31-33 are objected to because they recite the limitation "said film" in line 3. There is insufficient antecedent basis for this limitation in the claims 31-33.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 23-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Kuroda et al (US Pat No 6,342,754 B1).

Regarding claims 23 and 28, Kuroda discloses an image forming apparatus (flat panel display) including a first substrate (2), a plurality of electron emitting devices (9, 12), a second substrate that in said vacuum container is located opposite the first substrate and that is irradiated by electrons emitted by the electron emitting devices (see fig. 2), and one spacer (10), at least, that is mounted as an atmospheric-pressure resistant structure on one of the first and second substrates (col. 1, line 33-35), that is sandwiched directly between the first and the second substrates (see fig. 2), and that is extended longitudinally in a direction perpendicular to the direction in which the first and second substrates are positioned opposite each other, wherein a film (10b, 10c) which is electrically connected to either the first substrate or the electrode and is not to be charged as easily as the surface of the spacer, is formed on the surface of the spacer at a plurality of portions in the longitudinal direction of the spacer (see fig. 1, col. 10, line 43-62).

Regarding to claims 24-27 and 28-37, Kuroda further discloses the film is deposited on a surface of the spacer that is exposed into the vacuum container (see fig. 1), wherein the film includes a high resistance film having a sheet resistance (col. 2, line 11-15 and col. 5, line 37-40).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murata et al (US Pat. No 4,769,575) in view of Allaire et al. (US Pat. No 4,363,648).

Regarding claims 1-3, 7, and 9, Murata discloses an electron gun of an image display apparatus including a first substrate (12), that is provided in a vacuum container and that includes a plurality of electron emitting devices (2), a second substrate (3) that in the vacuum container is located opposite the first substrate and that is irradiated by electrons emitted by the electron emitting devices (see col. 3, line 22), one spacer (13), at least, that is mounted as an atmospheric-pressure resistant structure on one of the first and second substrates, that is sandwiched between said first and second substrates, and that is extended longitudinally in a direction perpendicular to the direction in which the first and second substrates are positioned opposite each other (see figs 1-8). Murata discloses the claimed invention except for the support member, for supporting the spacer outside an electron-emitting region and wherein at least the spacer or the support member has a structure that relieves the stress that is generated when the spacer is sandwiched between the first and the second substrate. On the other hand, Allaire et al discloses a floating vanes for flat panel display system including a support member (30, 32, fig. 1) for supporting the spacer outside an electron-emitting

region wherein the support member has a structure that relieves the stress that is generated when the spacer is sandwiched between the first and the second substrate (see entire abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display panel of Murata by adding a support member to the spacer in the housing between the two substrates prior to evacuating the interior in order to limit the movement against the forces generated by the atmospheric pressure when the interior is evacuated.

Regarding claims 4-6, 8, and 10-15, Allaire further discloses that the support member is fixed to the first substrate (fig. 1), and wherein the structure for reducing the stress is a structure wherein the ends of the spacers are inserted into grooves formed in the support member (38, 50, fig. 1), wherein the support member is shorter than the spacer in the direction in which the first substrate faces the second substrate (see fig. 1), wherein the support member supports a plurality of the spacers (see fig. 1), wherein the support member is fixed, together with the spacer to the substrate on which the spacer is mounted (see fig. 3), wherein the support members support one or both longitudinal ends of the spacer (see fig. 3).

Claims 16-22, and 38-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murata and Allaire as applied to claims 1-16 above and further in view of Kuroda et al (US Pat. No 6,342,754 B1).

Regarding claims 16-22, the combined references of Murata and Allaire discloses the claimed invention as applied above but they don't disclose the film that is charged less easily than the surface of a base member that serves as the spacer is

deposited on the surface of the spacer that is exposed in the vacuum container.

However, Kuroda et al teaches that a charge-reducing film can minimize the adverse effects of electric charge on emitted electrons, reduce the electron charge on emitted electrons and also diversions of the courses of electrons emitted toward the image forming member. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the flat panel display system of the Murata and Allaire by applying a charge reducing film to the spacer in order to prevent deviations of electron beams caused by electric charges of the surface.

Regarding claims 38-50, the combined references of Murata and Allaire disclose the claimed invention as applied above but they don't expressly disclose the electron-emitting devices are cold cathode devices. However, Kuroda discloses a display apparatus including a plurality of cold cathode type electron emitting devices. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the image display of Murata by incorporating cold cathode type electron emitting devices such as field emission type electron emitting devices because these devices can be arranged highly densely within a limited surface area.

Conclusion

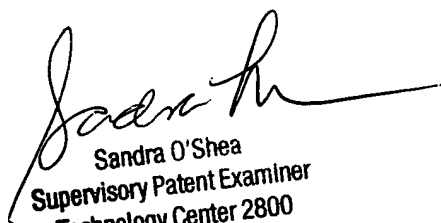
5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sato et al (US Pat. No 5,952,775) discloses an image forming apparatus is cited of interest.

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6. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Ali Alavi whose telephone number is (703) 305-0522. The examiner can normally be reached between 8:00 A.M. to 4:030 P.M. Monday to Friday. If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, Sandy O'Shea can be reached at (703) 305-4939 or you may fax your inquiry to the receptionist at (703) 308-7382.

Ali Alavi

11/22/02


Sandra O'Shea
Supervisory Patent Examiner
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